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PHOTOGRAPHIC INTELLIGENCE REPORT

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WASTE DISPOSAL AREA

NOVOSIBIRSK ATOMIC ENERGY COMPLEX, USSR

DECLASS REVIEW by NIMA/DOD

CIA/PIR 73032

DATE APRIL 1967
COPY 106
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WASTE DISPOSAL AREA
NOVOSIBIRSK ATOMIC ENERGY COMPLEX, USSR

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SUMMARY

The new construction first evident in [] at the waste disposal area of the Novosibirsk Atomic Energy Complex has been identified as a solid waste storage facility. The basis for the identification was from similarities to described Soviet plans. The construction could not be linked to any new buildings constructed in the complex during the same time period. A search of the areas at other specified [] did not reveal similar facilities under construction. No significant changes occurred in the liquid waste dump area since the solid waste storage facility has been under construction although much expansion had taken place in the 1957-1964 time period.

INTRODUCTION

A detailed analysis of the waste disposal area of the Novosibirsk Atomic Energy Complex, 55-05N 82-59E, was made utilizing [] photography. The waste area is located approximately 3 nautical miles NE of the complex which is in the northern outskirts of this Central Siberian city (Figure 1). The Trans-Siberian railroad runs along the southern boundary of the waste disposal area. Service roads, a highway, and an overhead pipeline connect the waste area to the [] within the complex. The complex also contains a large power plant, and a possible [] 1/ 2/ Other industries within the immediate area are the airframe plant Chkalov 153, a probable structural steel fabrication plant, and a pre-cast concrete manufacturing plant.

The new construction activity on high ground in the eastern portion of the waste disposal area has been interpreted as a solid waste storage facility (Figure 2). Good quality [] during the middle stages of construction revealed this facility was comparable in size and shape to Soviet plan drawings for dry storage of radioactive waste material. 3/ A description and chronological study of the solid waste storage facility, and other changes in the open liquid waste dump are presented in this report. In addition an examination of the Novosibirsk Atomic Energy Complex to determine new construction concurrent with construction at the waste facility, and a search for a similar facility at other specified [] sites was conducted.

Measurements. Measurements have been made by the NPIC Technical Intelligence Division with the exception of those shown by an asterisk which were made by the CIA/IAS project analyst. The NPIC/TID measurements are considered to be accurate within ± 5 feet or $\pm 5\%$, whichever is greater.

SOLID WASTE STORAGE FACILITY

The solid waste facility was seen still under construction on the latest coverage of []. The last good quality coverage of this facility was on non-stereo photography of [] (Figures 2, 3). At that time 2 wide excavations or trenches were discernible (there had been only 1 trench in []). The sides of the trenches were divided into 7 evenly spaced compartments for a total of 28 compartments. An inner flat surface extended the length of each trench between the 2 rows of recessed compartments. Between the 2 trenches was a line of stud-like objects having an appearance of an unfinished trestle. An embankment leading to the possible trestle had the characteristics of a railroad bed

due to its gentle curve. The facility was road served, the main service road extending only a short distance from the highway. The only support building of any size was located south of the trenches between the main service road and the railroad bed. Other construction roads were visible around the excavation activity and to a borrow pit. What appeared to be cranes and sections of pre-cast concrete were evident, and a probable concrete floor was being installed in the center of the west trench. New scarring from land clearing around the facility was for security fencing seen on subsequent photography.

The measurements of the trenches as obtained from [] are shown on the enlargement of the area (Figure 3). The outer (maximum) dimensions of the trenches averaged []. The inner (minimum) dimensions averaged []. The average size of each compartment was [] and the center floor space between compartment rows of both trenches averaged [] wide. These dimensions were in agreement with Soviet drawings for storage of dry solid waste of small dimensions (Figure 4). 3/ The plan was for a trench divided into 9 segments with a total length of []. If the 7 compartments are the segments so described, the proportionate length for 7 segments would be 280 feet. The width of [] compares favorably also.

Available photography after [] has been fair quality [] and poor quality [] from which only limited information was derived. On [] a building appeared to be under construction in the center of the west trench, which was the first to be excavated (Figure 5). Later photo coverage from [] showed the building may have a higher section in the center. The compartments were not discernible; they probably have been covered by lower sections of the building. A large bridge crane was located immediately north of the building which appeared to have a width approximating the outer width of the earlier trenches. A second bridge crane was also observed at the edge of the east trench indicating a similar building was probably under construction. Whether these bridge cranes are temporary for the building construction or will be a permanent feature of the facility can only be speculated. The Soviet plan described the need for a structure to protect the stored waste materials from the weather and shows a center section [] wide (Figure 4). 3/ This corresponds to the measured inner floor space of the trenches (Figure 3).

[] confirmed the presence of double fencing around the solid waste storage facility. Possible guard towers were at the 4 corners of the outer fence. This fencing was barely discernible on [] (Figure 5).

The status of railroad construction on the curved roadway has remained unchanged since [] (Figure 6). There is no indication of tracks being laid; however, it appears likely that the roadway will be extended in the future to connect with a similar embankment which now terminates at the western edge of the liquid waste dump. A railroad line so completed would connect to a rail classification yard near the atomic energy complex, and thus avoid traffic on the Trans-Siberian line.

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RAILROAD STATION
UNDER CONSTRUCTION

GAM SITE AND SUPPORT FACILITY

FIRE-CAST CONCRETE PLANT

FORGABLE
STEEL FABRICATION PLANT

RAIL CLASSIFICATION YARD

ATOMIC ENERGY COMPLEX

NOVOSIBIRSK AIRFIELD NORTHEAST

AIRFRAME PLANT CHALOV 15

FIGURE 1. NOVOSIBIRSK AND SURROUNDING AREA

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RAILROAD BED UNDER CONSTRUCTION

RAILROAD BED UNDER CONSTRUCTION

HIGHWAY

TRANS-BERBERIAN RAILROAD

CLOUD SHADOW

BORROW PIT

POSSIBLE
PRE-CAST CONCRETE SECTIONS

SCAFFOLD FOR
FENCE CONSTRUCTION

VEHICULAR EQUIPMENT
AND CHASE

BRIDGE
UNDER CONSTRUCTION

RAILROAD BED UNDER CONSTRUCTION

SUPPORT BUILDING

FIGURE 2. WASTE DISPOSAL AREA, NOVOSTROVKA, USSR

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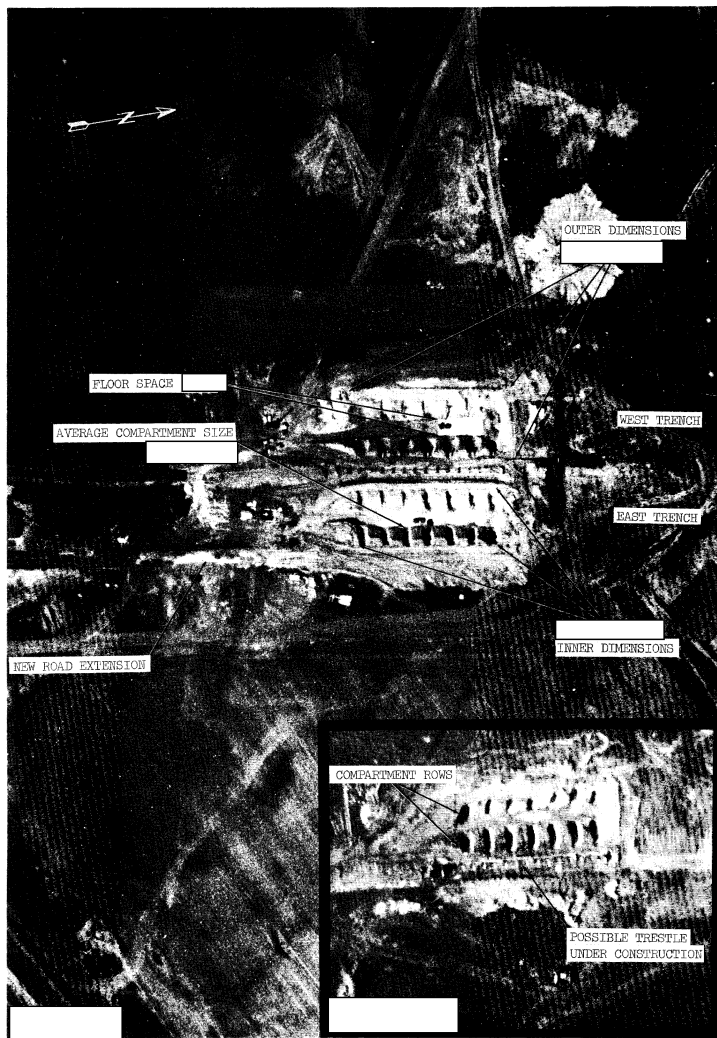


FIGURE 3. SOLID WASTE STORAGE FACILITY

CONSTRUCTION CHRONOLOGY OF SOLID WASTE STORAGE FACILITY

Excavation of the west trench was begun in Spring 1965 and continued throughout the summer. Work apparently was suspended during Winter 1965-1966. The second or east trench was excavated the following summer. Most of the excavation work appeared complete in the fall of 1966 with construction commencing on structures to cover the trenches during the winter months. This construction work was still in progress at the time of the latest photographic coverage on [redacted]

Observations made during the study of the construction history at the solid waste storage site are summarized as follows:

[redacted]
No activity apparent.

[redacted]
Tracking in snow evident to site, and extended to the borrow pit in the waste dump.

[redacted]
Curved scarring for roadway leading to site seen for first time. Some scarring evident at excavation site. Support building at entrance possibly under construction.

[redacted] first good quality coverage)

Square-shaped support building appeared complete. Immediate area around site cleared of vegetation. Indications of an excavation at end of the curved roadway. New scarring activity seen about midway between the site and the borrow pit.

[redacted]
Excavation of west trench definitely underway.

[redacted]
Quality precluded additional analysis.



FIGURE 4. SOVIET DRAWINGS FOR DRY RADIOACTIVE WASTE STORAGE

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First good view of the new construction (Figure 6). West excavation fully developed showing the 7 recessed compartments along each side. Embankment of curved roadway evident as a railroad bed under construction. Stud-like objects seen in a lower elevation of the curved roadway indicated possible construction of a trestle.

Not observed; imagery very dark.

No significant change seen on poor quality imagery.

Snow cover and obliquity precluded additional analysis.

Work probably suspended due to cold weather conditions.

Poor quality precluded additional analysis.

First evidence of an excavation on east side of curved embankment. West trench appeared unchanged since coverage. New construction road intersected older road to borrow pit.

East excavation had been lengthened since indicating work on it was in progress at that time. New road scar from highway extended past support building on southside, but not to excavations. Scarring again in evidence between excavations and borrow pit.

First appearance of the 7 recessed compartments in the east excavation on one side (nearest the possible trestle). Other side appeared smooth with no compartments, but possibly obscured by obliquity of photography. Light-toned construction material present at both ends of west excavation may have been pre-cast concrete.

Excellent non-stereo coverage permitted identification of the 7 compartments on each side of east trench (Figure 3). Possible pre-cast concrete being laid for flooring in center space between compartment rows of the west trench. The new road first seen on extended to eastern edge of east trench. Vehicular equipment and boom cranes visible for first time in various locations around the site. New unidentified construction north of the trenches (later identified as bridge cranes under construction). Scarring for cleared area interrupting construction roads marked probable beginning of fence installation.

Poor quality coverage revealed possible completion of security fencing.



FIGURE 5. SOLID WASTE STORAGE FACILITY -

Poor quality photography, but unidentified construction first seen on appeared to be overhead bridge cranes confirmed on photography of

First evidence of building being constructed in center of west trench (Figure 5). Fencing around facility barely discernible, but was probably complete.

Double fencing of the facility confirmed with 4 possible guard towers at corners of outer fence. Roof of building in west trench appeared to have a higher mid-section, and was nearly complete. Construction activity evident in base of east trench area. The recessed compartments were no longer discernible at either trench indicating that they have possibly been covered. Bridge cranes were positively identified at north ends of the 2 former trenched areas. No significant change observed in the construction status of the possible trestle between the east and west areas.

Partial foundations evident in east trench area of same configuration as building in west trench area. Bridge crane in east area moved since previous day

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LIQUID WASTE DUMP AREA

The area for liquid waste and sludge in the waste disposal area has greatly expanded since the early coverage of 1/. The old fenceline scars for the original dump area, now designated Basin A, can be seen on later photography (Figure 6). The present perimeter fence where visible shows the amount of expansion as an approximate threefold increase. It appears that practically all of this expansion occurred prior to the oldest photo coverage used in this study.

The changes that took place during the 1957-1964 time period are annotated on Figure 6 and include:

The building of a second dike to restrict flow for another dump area referred to as Basin B. Basin B is at a lower elevation than Basin A. A very small melted area was evident only in Basin B during the recent winter coverage. An unloading ramp, similar to the existing ramps in Basin A, was still under construction in 1964 for Basin B. Dump trucks are probably used to bring wet sludge-type waste for unloading at the ramps. A vehicle was observed at the newer ramp in 1964.

The addition of an overhead pipeline capable of discharging into both basins. Two discharge points can be seen, one for each basin, from the overhead pipeline. The pipeline can be traced as far as the refinery area supporting the uranium metal plant (Figure 7) which almost assures that some liquid waste is emanating from a source within the plant.

The construction of several buildings and storage tanks. Two rectangular-shaped buildings had been added along the main service road on the western side of the waste disposal area. The building nearest the guarded entrance possibly is a decontamination building where departing trucks could be washed and checked for radioactive contamination. This building does appear to have a drive-through capability. No similar building is evident at the service road for the newer ramp in Basin B, indicating the waste composition could be of a different nature. The other building may be a control building containing monitoring equipment and field offices for operating personnel. Four tanks (1 covered, 3 open) were located on the opposite side of the road from the possible control building. These 4 tanks were earth-covered in 1964 (Figure 2). The service road was extended to another probable storage tank located in the northwest corner of the waste disposal area; the tank was installed between 1957 and 1964. Both areas of tank storage possibly hold liquid wastes containing radioactive levels too high for dumping in the open basins. The storage might be temporary to allow sufficient time for decay cooling.

NEW CONSTRUCTION AT THE ATOMIC ENERGY COMPLEX

There is no photographic evidence of new construction in the uranium metal plant section of the Novosibirsk Atomic Energy Complex since 1964, the time period of construction of the solid waste storage facility. Some construction, however, has progressed around the power plant and buildings identified as a possible lithium isotope separation plant. 2/ Most of this construction activity so described had been completed prior to 1964. The exceptions as shown by the following numbers on Figure 7 were:

1. The completion by 1964 of a structure northeast of the power plant with two columns atop the building. The exact function of this building is unknown although the presence of possible extraction columns suggests a processing-type operation. A plume vapor apparently was being emitted from these columns on the most recent coverage 1964.

2. The additions to existing unidentified buildings northwest of the power plant appeared finished by 1964.

3. The completion by 1964 of the long narrow building southwest of the power plant. This building was under construction in 1964.

4. The razing of storage buildings and the clearing of land east of the power plant. Three bridge cranes had been constructed in the eastern half of the cleared area by 1964.

5. The covering of the circular structure 2/ within the area of the possible lithium plant. This circular structure under construction in 1964 appeared complete in 1964 and pipelines connected it with the probable process buildings on either side.

Construction activity on the probable railroad embankment between the classification yard near the atomic energy complex and the western edge of the waste disposal area was first noticed on 1964. It appears that the work on it has stopped as there has been no change in the status of this construction since 1964 (Figure 1).

From the photography alone, none of the newer construction at the atomic energy complex can be directly associated with the waste disposal area. However, it is felt that no other industrial installations would be permitted to use the secured waste facilities if in fact they produce a waste product. A search of the surrounding area did not reveal any additional waste facilities. The only conclusion that can be made is that the bulk of the liquid waste material must be coming from the refinery area of the metal plant, a possibility that some waste is derived from the possible lithium isotope separation processes, and that a need has arisen for burial of solid materials (possibly worn-out contaminated equipment).

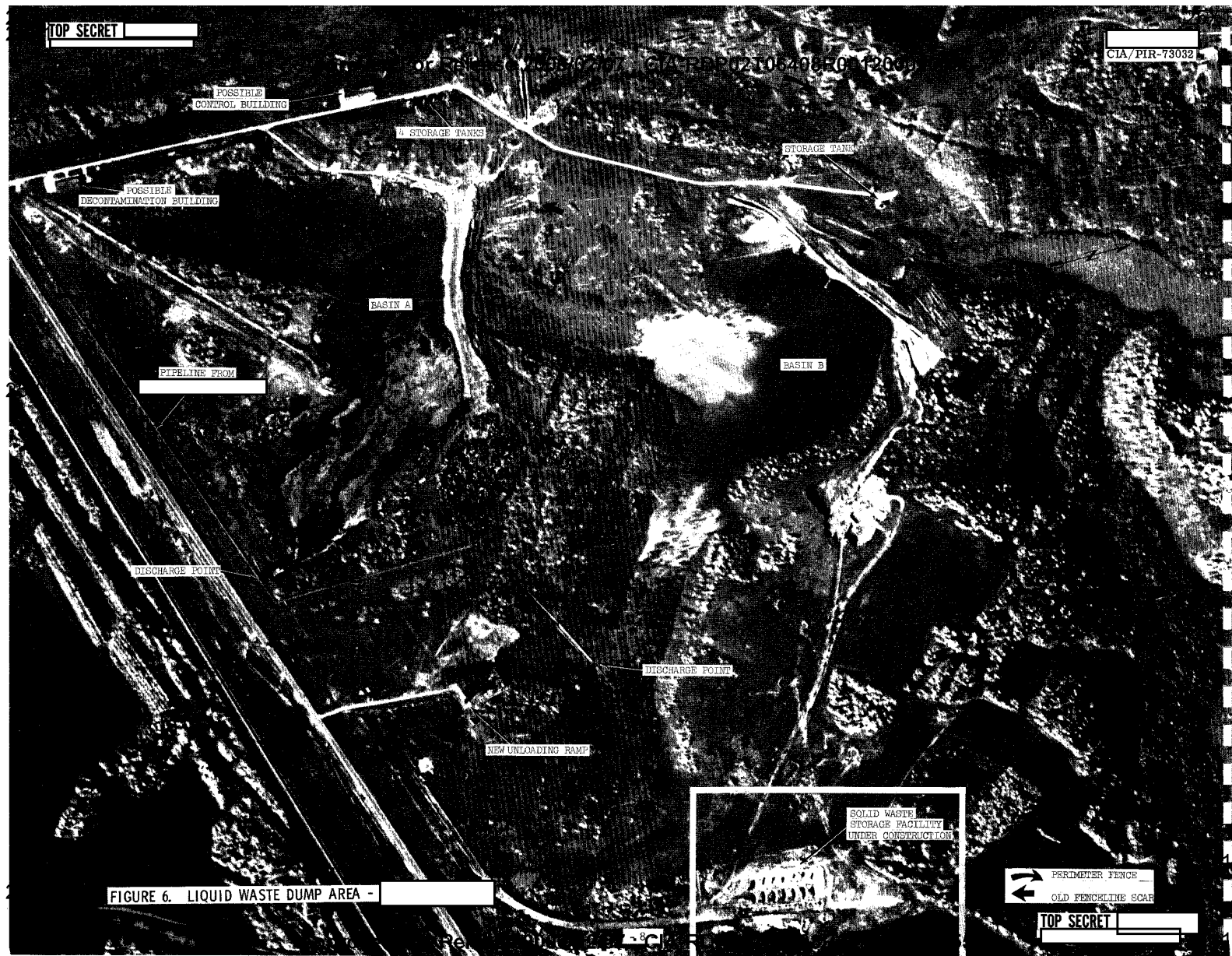
SEARCH FOR SIMILAR FACILITIES AT OTHER SPECIFIED ATOMIC ENERGY PLANTS

Other atomic energy plants in the USSR known to be involved in uranium metal production similar to that at Novosibirsk are located at Glazov (58-09N 52-40E) and Elektrostal (55-47N 38-30E). Metal fabrication is also thought to exist at the 1964. A search of these areas did not reveal a facility similar to the solid waste storage facility under construction at Novosibirsk. The photography utilized in the searches was selected to correspond in time with this new construction seen at Novosibirsk. In addition, no completed facilities were observed that might be suspected of carrying out this type of storage.

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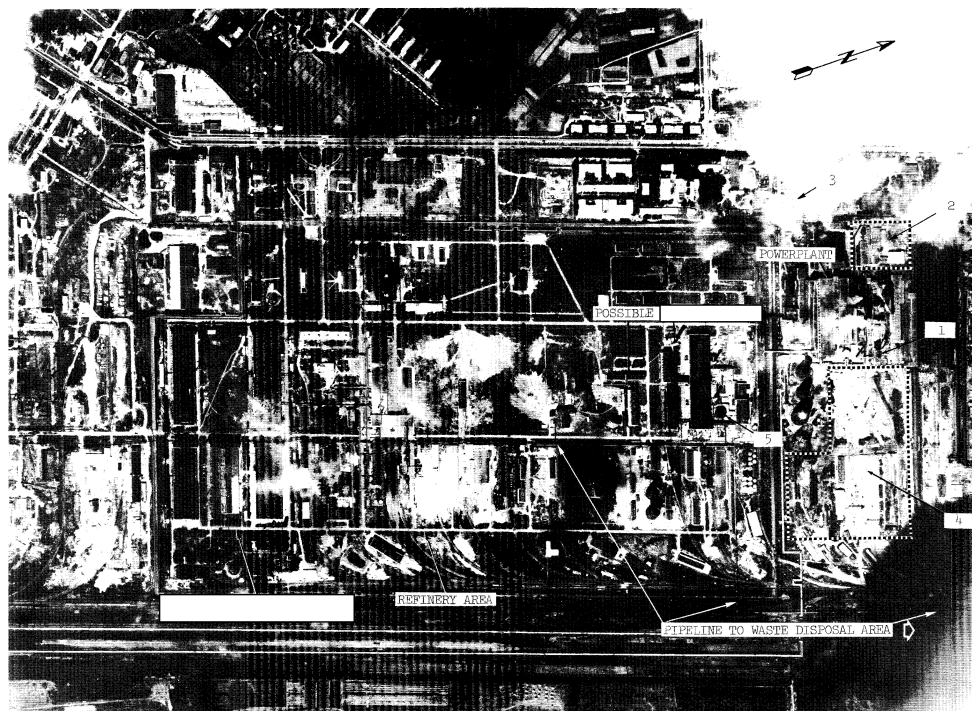
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FIGURE 7. NOVOSIBIRSK ATOMIC ENERGY COMPLEX, USSR -

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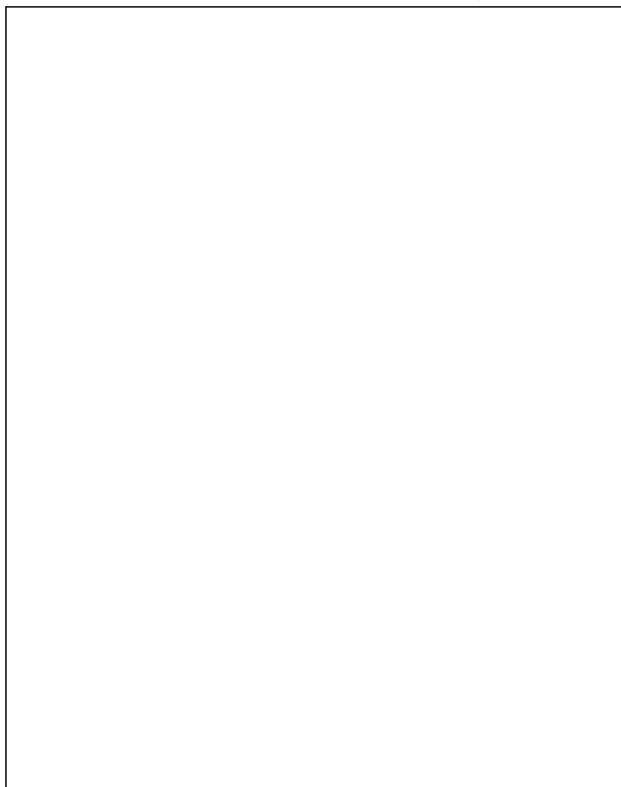
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REQUIREMENT NO.

C-SI6-84,150

CIA/IAS PROJECT NO.

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